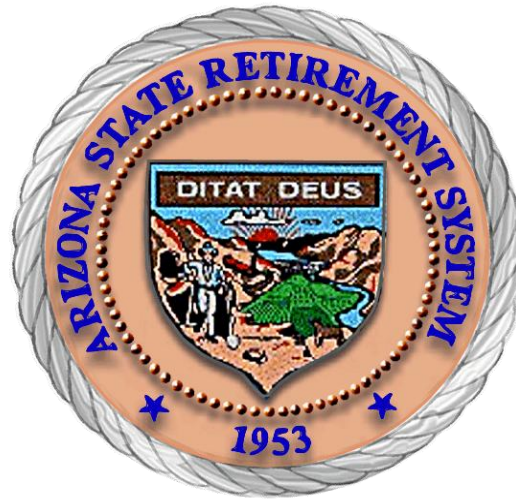


Arizona State Retirement System



Global Tactical Asset Allocation (GTAA)

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Allan Martin, Managing Partner, NEPC

November 23, 2009

Agenda

- Evolution of ASRS Tactical Asset Allocation Program
- ASRS Perspectives of GTAA
- ASRS GTAA Program Review (Aggregate)
 - Asset Class Snapshot
 - Alpha/Information Ratio
- GTAA Manager(s) Reviews (Individual)
 - Portfolio Profile
 - Alpha/Information Ratio
 - Performance Attribution
 - Current Portfolio Positioning
 - Allocation of Active Risk
- GTAA Manager(s) Ratings/Assessment

Evolution of ASRS Tactical Asset Allocation Program

- ASRS Tactical Asset Allocation (TAA) program was initiated in 1984.
- In 2003, the program migrated from U.S. TAA to Global TAA strategy.
 - Goldman Sachs and Bridgewater were hired.
- In 2007, the Goldman Sachs (GS) mandate was terminated due to organizational, investment processes and volatility of returns concerns. The GS portfolio was transitioned to Bridgewater and BGI Index Fund.
- In 2007, Bridgewater's guidelines were modified to allow commodities in the range of 10%.
- In 2008, a GTAA search resulted in DB Advisors and Mellon Capital being selected as GS replacement managers.
 - DB was funded with approximately \$500 million from BGI Index Funds.
 - Mellon Capital funding would be contingent on ASRS/Mercer monitoring Mellon over a few quarters given a recent hiring of a new CIO and the implementation of portfolio model enhancements.
- In April 2009, following discussions with and concurrence by the Investment Committee (IC), the Opportunistic Investment Committee (OIC) rescinded Mellon Capital's GTAA mandate due to continued concerns regarding Mellon's performance and investment processes.

ASRS Perspectives of GTAA

- In light of the changing GTAA market environment, the ASRS has adopted a more traditional GTAA approach, with the following expectations:
 - GTAA is to provide the ASRS with a systematic framework for making macro-level tactical asset class investment decisions.
 - Though ASRS Total Fund return attribution will be dominated by strategic asset allocation policy, GTAA provides the ability to tactically take advantage of asset class anomalies and pricing differentials. Such tactical, active decisions are expected to provide incremental return relative to the ASRS Total Fund Benchmark.
 - GTAA is viewed as an “alpha-generator” whose returns should primarily result from portfolio positioning in the economic beta asset classes in which the ASRS invests.
 - GTAA requires a demonstrated skill set in predicting the dispersion of longer-term asset class returns. GTAA managers should add value in both rising and falling markets.

ASRS GTAA Asset Class (Aggregate)

ASRS GTAA Asset Class Overview (as of September 30, 2009)

- **Market Value: \$2.2 billion**

- Policy Target: 10% +/- 2%

- **Investment Managers:**

- Bridgewater Associates

- Inception: 12/31/2003

- Portfolio: \$1.8 billion

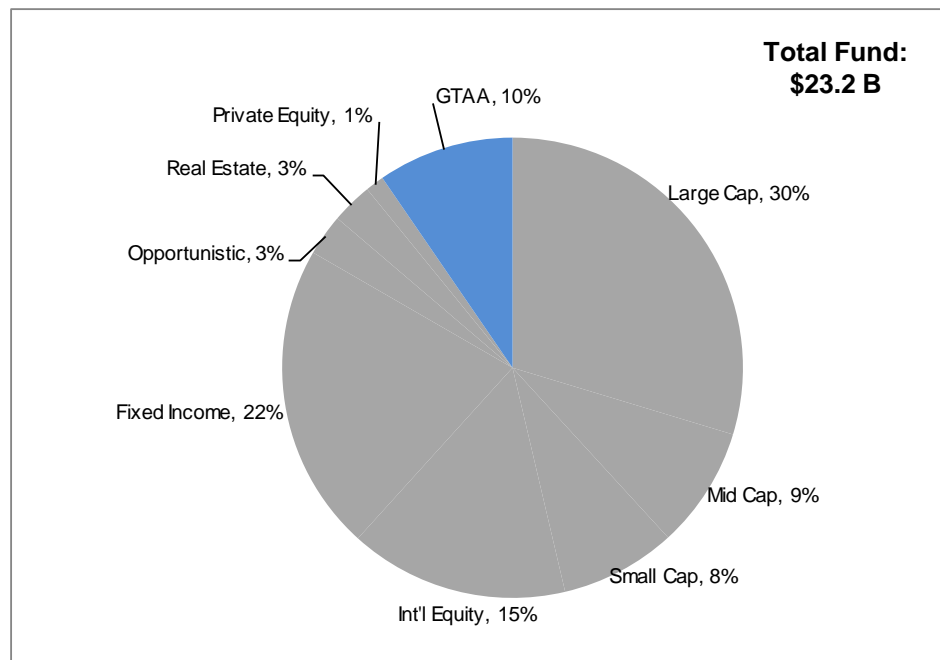
- DB Advisors

- Inception: 5/31/2008

- Portfolio: \$419 million

- **Benchmark:**

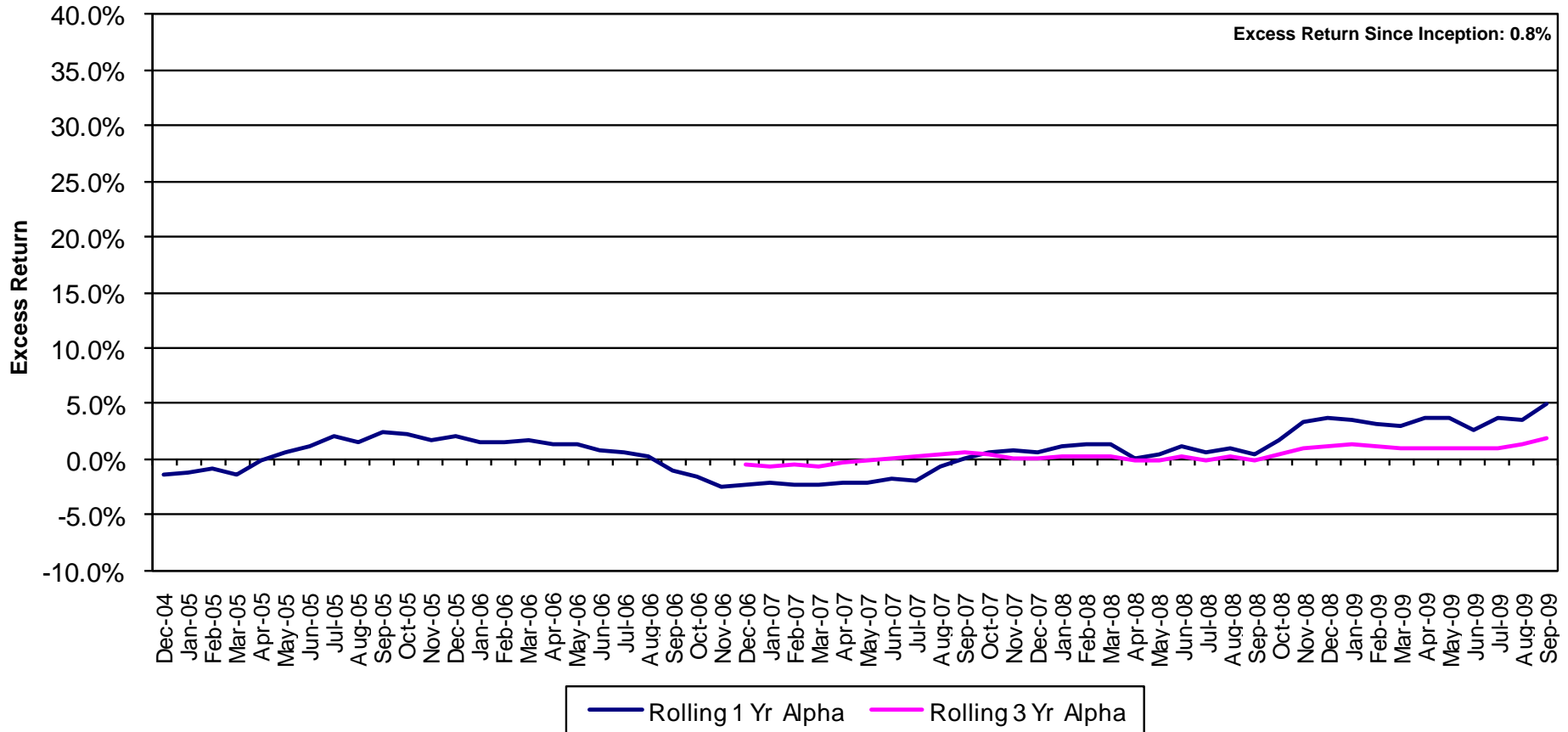
- 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate



ASRS Total GTAA (as of September 30, 2009)

GTAA Composite vs. GTAA Index¹

Excess Returns Since Inception (December 31, 2003) – September 30, 2009

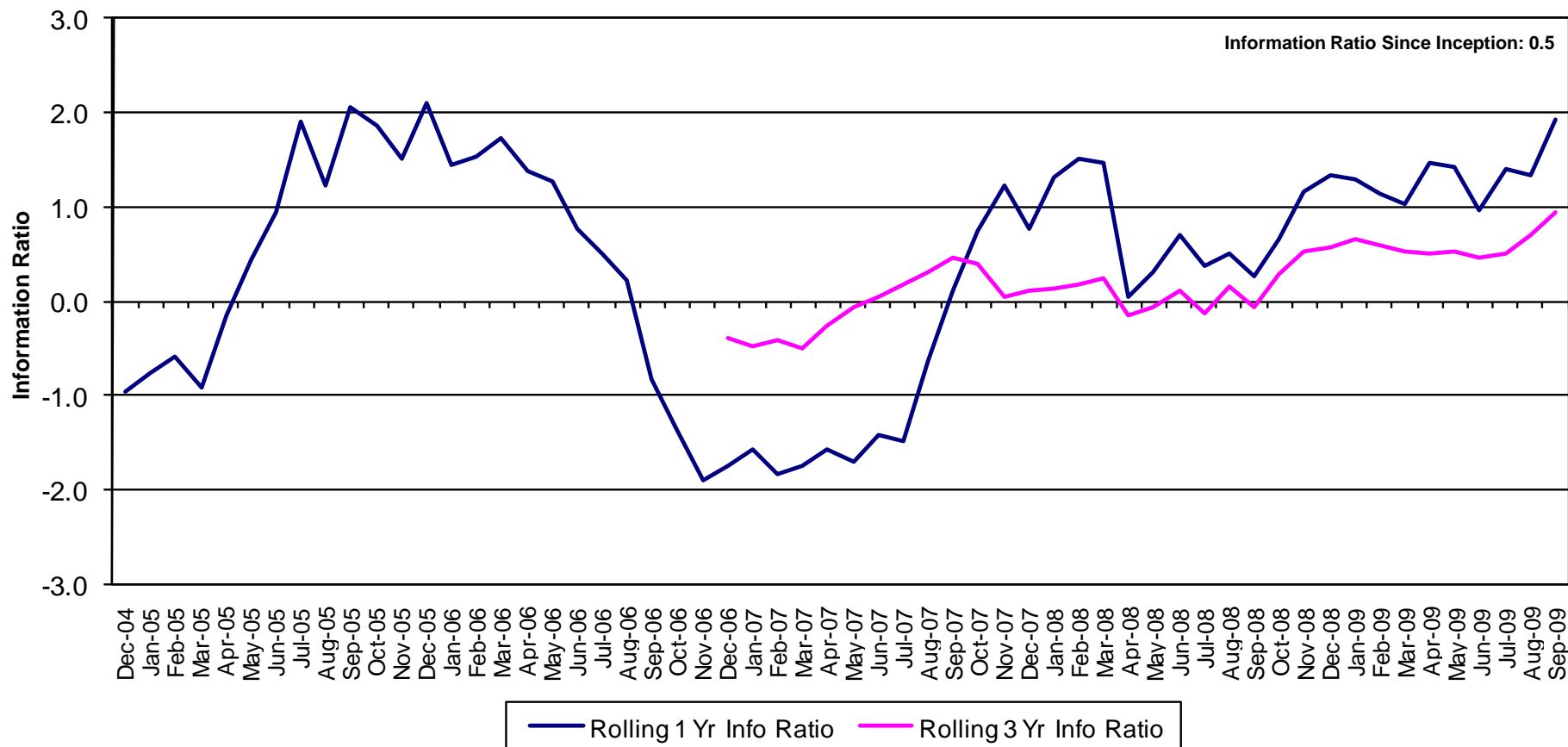


¹ASRS GTAA Index comprised of 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

Note: Based on monthly, net of fee performance data.

ASRS Total GTAA (as of September 30, 2009)

Rolling Information Ratio Since Inception (December 31, 2003) – September 30, 2009



Note: Based on monthly, net of fee performance data.

ASRS GTAA Performance (as of September 30, 2009)

	Market Value	Last 3 Months	Year to-Date	Last Year	Annualized Returns				Inception Date
					Three Years	Five Years	Ten Years	Since Inception	
ASRS GTAA Composite	\$2,241,342,064	14.4%	18.2%	5.2%	0.4%	4.8%	n/a	4.2%	Dec-03
<i>GTAA Custom Benchmark¹</i>		12.8%	17.4%	0.3%	-1.4%	3.4%	2.5%	3.4%	
<i>Performance Variance (Return - Benchmark)</i>		1.5%	0.9%	4.9%	1.8%	1.4%	n/a	0.8%	
Bridgewater	\$1,822,305,711	14.5%	17.9%	7.2%	1.5%	5.5%	n/a	5.2%	Dec-03
<i>GTAA Custom Benchmark¹</i>		12.8%	17.4%	0.3%	-1.4%	3.4%	2.5%	3.4%	
<i>Performance Variance (Return - Benchmark)</i>		1.7%	0.5%	6.9%	3.0%	2.2%	n/a	1.8%	
DB Advisors	\$419,036,353	13.8%	17.3%	-1.2%	n/a	n/a	n/a	-12.1%	May-08
<i>GTAA Custom Benchmark¹</i>		12.8%	17.4%	0.3%	-1.4%	3.4%	2.5%	-10.3%	
<i>Performance Variance (Return - Benchmark)</i>		1.0%	-0.1%	-1.4%	n/a	n/a	n/a	-1.8%	

¹56% S&P 500/16% MSCI EAFE/28% Barclays Capital Aggregate

Note: Manager performance is reported net of fees.

GTAA Manager Reviews (Individual)

Bridgewater Associates – Portfolio Profile

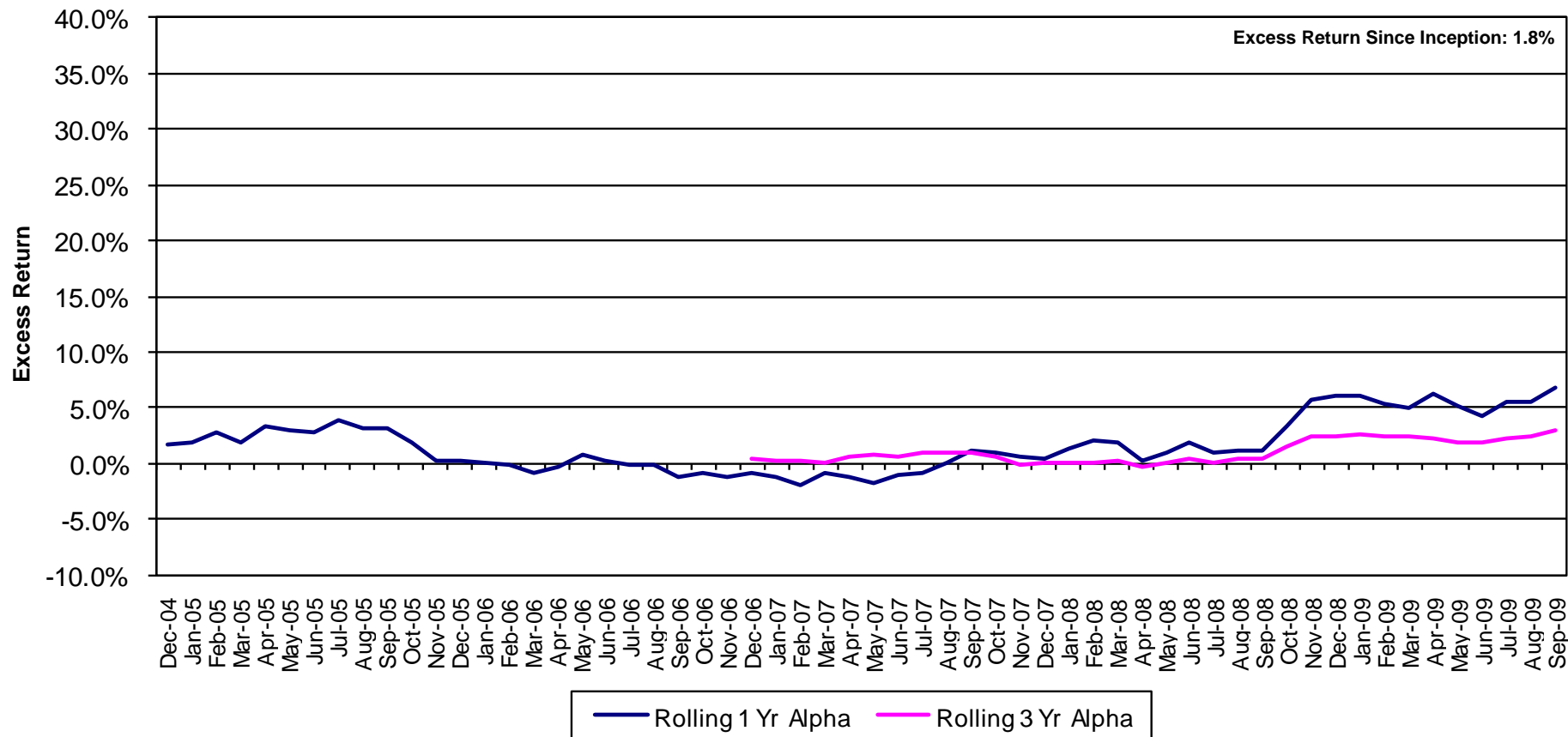
Portfolio Size	\$1,822 Million
Expected Excess Return	3.00%
Expected Tracking Error (Active Risk)	3.75%
Expected Information Ratio	0.80
Fees	40bps
Portfolio Structure	Derivatives – 55.5% Physical Securities – 40.1% Bridgewater Corporate Bond Fund – 3.4% Bridgewater Equity Fund – 1.0%
Investment Process	Fundamental
<p>Bridgewater believes that a deep understanding of the fundamental determinates of each country's interest rates, exchange rates, and equity markets is an essential prerequisite for adding value in global tactical asset allocation. Bridgewater also believes that a systematic process for quantifying this fundamental relationship and converting it into investment decisions is essential.</p>	

Note: Information as of September 30, 2009

Bridgewater Associates (as of September 30, 2009)

Bridgewater vs. ASRS GTAA Index¹

Excess Returns Since Inception (December 31, 2003) – September 30, 2009

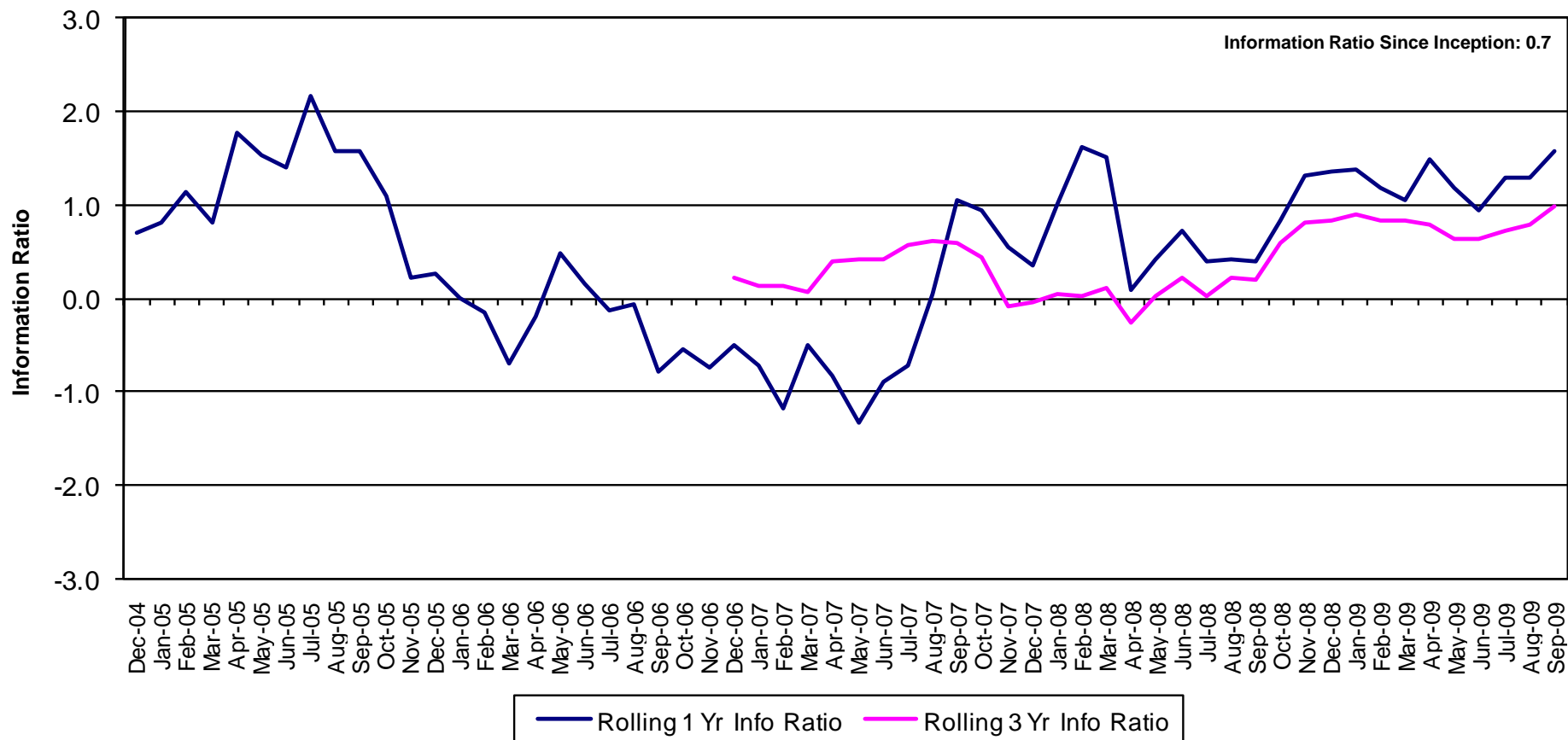


¹ASRS GTAA Index comprised of 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

Note: Based on monthly, net of fee performance data.

Bridgewater Associates (as of September 30, 2009)

Rolling Information Ratios Since Inception (December 31, 2003) – September 30, 2009



Note: Based on monthly, net of fee performance data, since inception

Bridgewater Associates – Performance Attribution

1 Year Ending September 30, 2009

- Biggest Winners

- Long U.S., U.K., & Euroland interbank rates
- Short position in Australian Dollar vs. both the Japanese Yen and U.S. Dollar in 4Q08
- Long position in Australian Dollar vs. both the Japanese Yen and U.S. Dollar in 2Q09 – 3Q09

- Biggest Losers

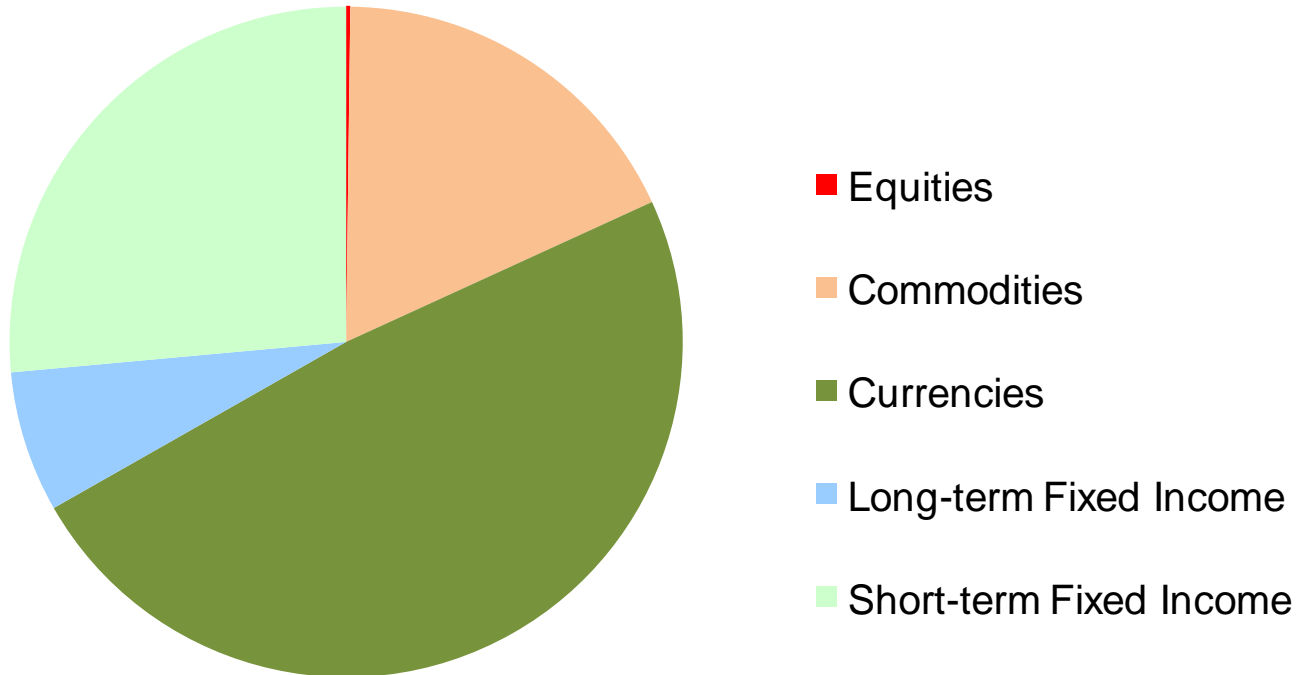
- Long Australian interbank rates
- Short Canadian interbank rates
- Short position in U.S. and Australian government bonds

Bridgewater Associates – Current Portfolio Positions

Strategy	Deviation from Benchmark	
Equity Country Selection:		
Total Equities	0.9%	→ Slightly bullish based on reflationary government policies
Commodities:		
Total Commodities	3.6%	→ Bullish gold as contra-currency; Slightly bearish extractive commodities based on supply/demand dynamics
Foreign Currency:		
Euro	-13.2%	Bullish AUD on healthy trade and capital flows picture; Moderately bullish JPY on structurally healthier balance of payments; Bearish EUR and USD as uncompetitive at current exchange rates
Australia	11.6%	
Japan	9.2%	
Switzerland	5.0%	
Other (4)	0.6%	
Total Foreign Currency	13.2%	
Fixed Income Strategy	Contribution to Duration	
Long-term Country Selection:		
Euroland	0.7	Bullish long rates on weak growth/inflation conditions; Bearish U.S. vs. Euroland long rates based on supply (issuance)/demand dynamics
United States	-0.3	
Australia	0.2	
Canada	0.1	
Other (2)	0.0	
Total Nominal Long Rates	0.7	
Short-term Country Selection:		
United States	0.6	Bullish short rates as we expect central banks to tighten less than discounted, particularly in U.S. and Euroland
Euroland	0.6	
Australia	0.2	
Other (3)	0.0	
Total Nominal Short Rates	1.4	

Note: Positions as of September 30, 2009. Foreign Currency "Other" includes, Canada, New Zealand, Sweden, and UK. Long-term fixed income "Other" includes, Japan and UK. Short-term fixed income "Other" includes, Canada, Japan, UK. Markets not shown may have a material impact on the performance of the account. Source: Bridgewater Associates

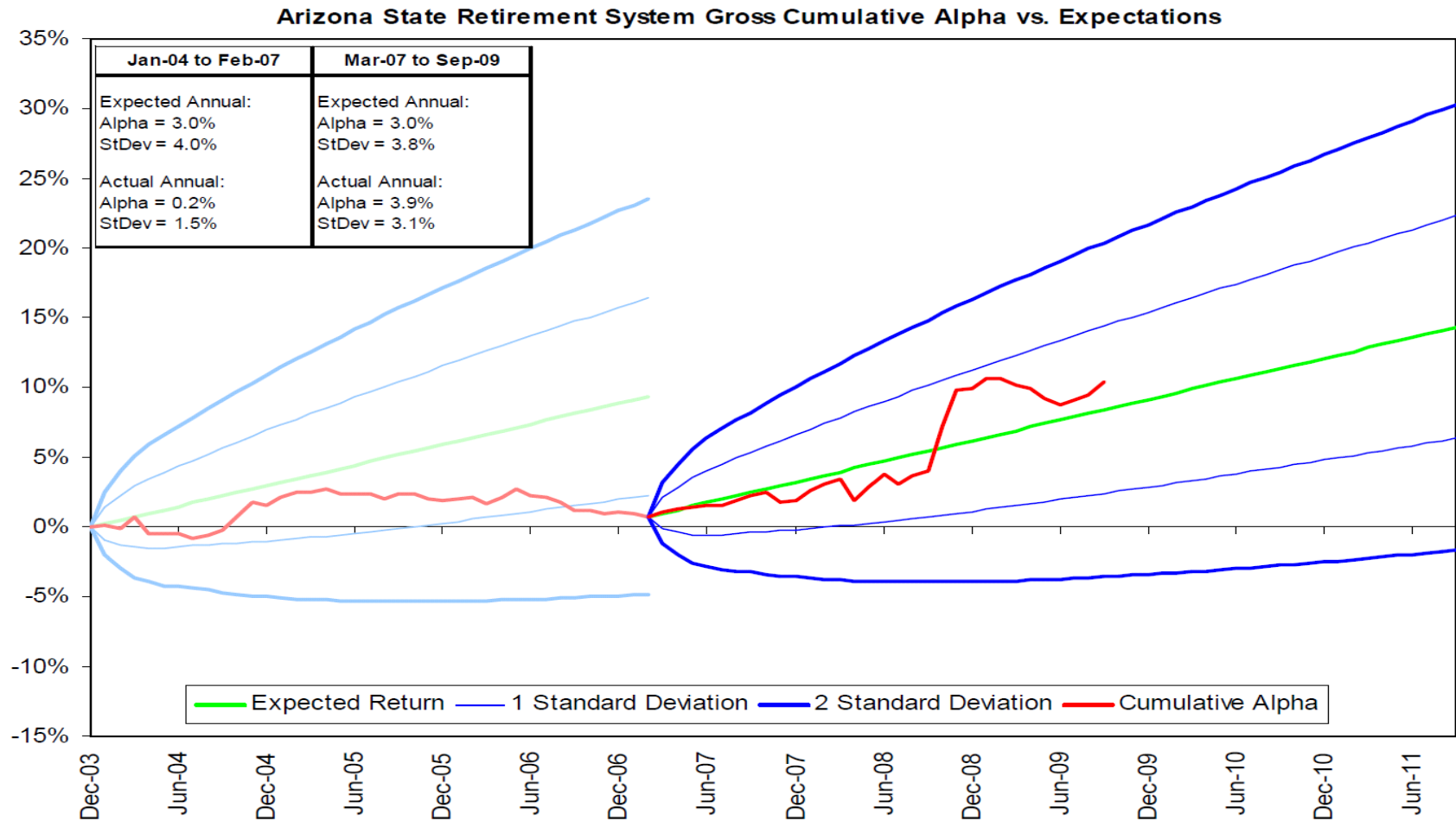
Bridgewater Associates – Current Allocation of Active Risk



Note: Active risk allocation as of September 30, 2009. "Allocation of Active Risk" represents the allocation of active management risk across the markets shown. The calculation is based on proprietary, time-weighted correlation and volatility assumptions.

Source: Bridgewater Associates

Bridgewater Associates – Performance vs. Expectations



Note: Effective March 2007, concurrent with an expansion of the account's leeway, the target tracking error of the mandate was decreased from 4.00% to 3.75%. Performance shown is based upon the returns of the account or investment referenced, as managed by Bridgewater. Where shown, gross of fees returns will be reduced by the investment advisory fees and any other expenses that may be incurred in the management of the account or investment. PAST RESULTS ARE NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.

Source: Bridgewater Associates

DB Advisors – Portfolio Profile

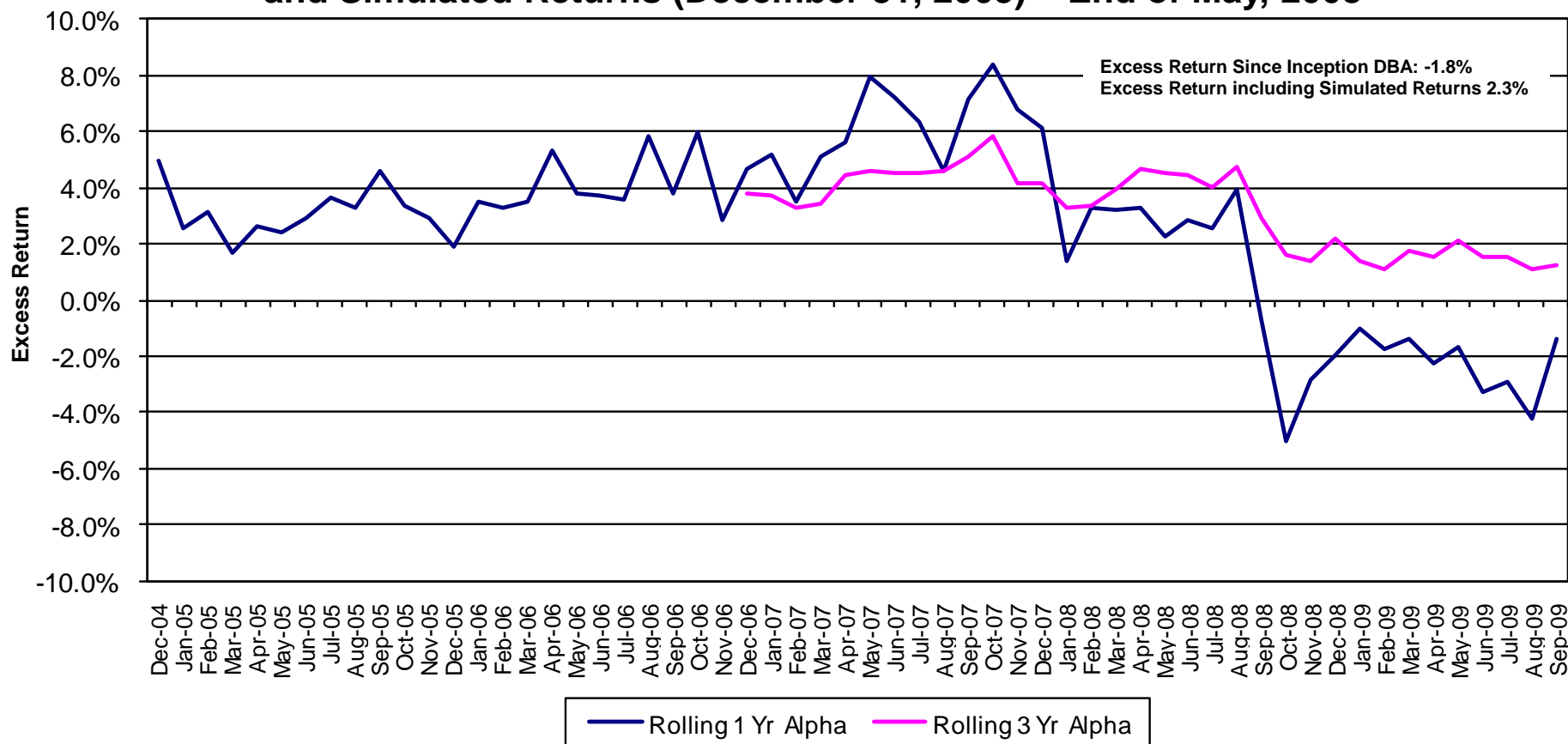
Portfolio Size	\$419.0 Million
Expected Excess Return	3.00%
Expected Tracking Error (Active Risk)	3.75%
Expected Information Ratio	0.80
Fees	60bps
Portfolio Structure	Derivatives – 5.5% Physical Securities – 90.5% Cash – 9.0%
Investment Process	Quantitative / Qualitative Blend
DB Advisors believes that no one approach to GTAA management is optimal, and that a diversified approach capturing the strengths of a range of styles and avoiding the risks associated with style dependence is preferable. Accordingly, DB's iGAP strategy blends a range of different approaches.	

Note: Information as of September 30, 2009

DB Advisors (as of September 30, 2009)

DB Advisors vs. ASRS GTAA Index¹

Excess Returns Since Inception (May 31, 2008) – September 30, 2009 and Simulated Returns (December 31, 2003) – End of May, 2008²



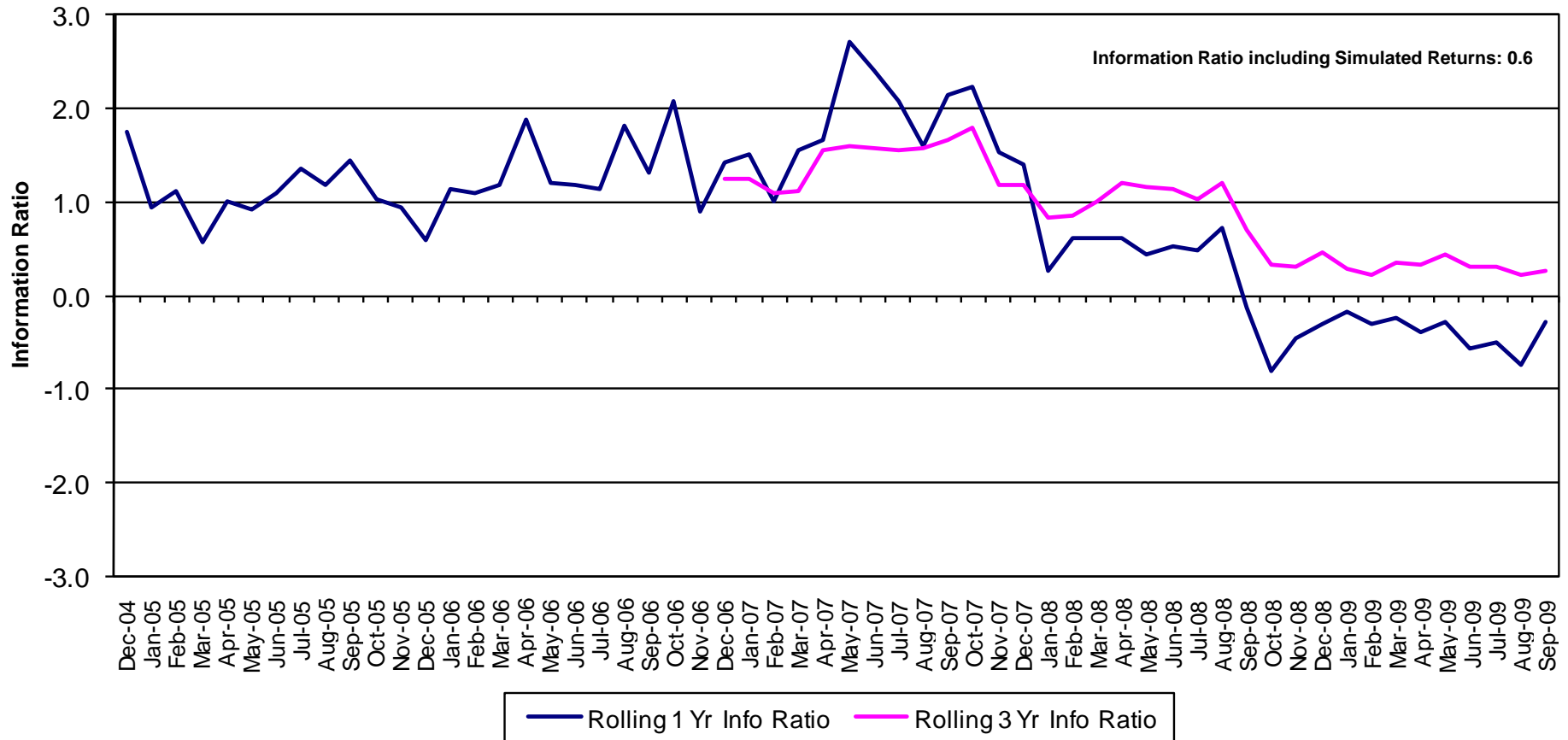
¹ASRS GTAA Index comprised of 56% S&P 500; 16% MSCI EAFE; 28% Barclays Capital Aggregate

²Based on monthly, net of fee performance data. Performance shown is a blend of the actual ASRS portfolio results (June, 2008 – present) and a simulation of portfolio results (January 2004 – May 2008) using ASRS GTAA guidelines. Simulation data (gross of fees) are provided by DB Advisors.

DB Advisors (as of September 30, 2009)

DB Advisors

**Rolling Information Ratios Since Inception (May 31, 2008) – September 30, 2009
and Simulated Returns (December 31, 2003) – End of May, 2008²**



²Based on monthly, net of fee performance data. Performance shown is a blend of the actual ASRS portfolio results (June, 2008 – present) and a simulation of portfolio results (January 2004 – May 2008) using ASRS GTAA guidelines. Simulation data (gross of fees) are provided by DB Advisors.

DB Advisors – Performance Attribution

1 Year Ending September 30, 2009

- Biggest Winners

- Long positions in U.K. Gilt and EuroBonds
- Long position in German Equity and short position in Japanese Equity
- Long Positions in Australian Dollar and Swiss Franc

- Biggest Losers

- Long position in U.S. Bonds and short position in Japanese Government Bonds
- Long position in the Netherlands Equity and short position in U.S. Equity
- Short positions in the Norwegian Krone and Swedish Krone

DB Advisors – Current Portfolio Positions

Strategy	Deviation from Benchmark
<u>Equity Country Selection:</u>	
United States	-6.2%
Germany	7.7%
Other (9)	0.1%
Total Equities	1.6%
<u>Commodities:</u>	
Total Energy Commodities	0.3%
<u>Foreign Currency:</u>	
Australia	11.2%
Euro	-7.8%
Switzerland	9.7%
Japan	-3.0%
Other (6)	-0.5%
Total Foreign Currency	9.6%
<u>Fixed Income Strategy</u>	
<u>Long-term Country Selection:</u>	
Euroland	2.3%
Japan	-1.9%
Other (4)	-0.9%
Total Nominal Long Rates	-0.5%

Short U.S. Nasdaq as relative earnings revisions look vulnerable in technology; Short S&P 500 and Russell 2000 as valuations look more expensive than other markets, options pointing negative. Long German stocks driven by attractive valuations.

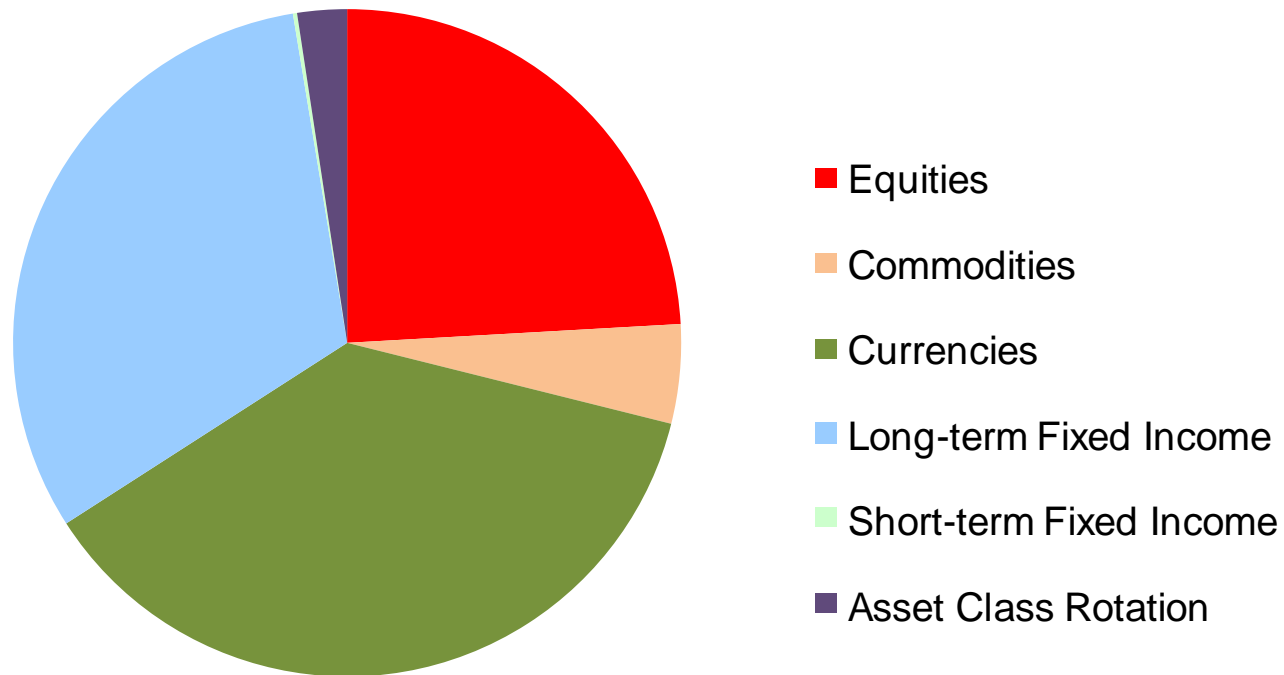
Calendar and crack spreads in the energy space.

Long the AUD due to stable and supportive macro environment, commodity prices still have higher to go. Long CHF as U.S. policy favors lower USD; sentiment and macro factors remain positive. Short EUR as interest rates signal a fall. Short JPY as quantitative easing to stay in place for some time, government still likely to intervene to support exporters.

Long euro bonds as investors risk aversion remains high in euro-zone; high real yield. Long euro schatz declining short rates; quantitative easing pushed rates lower. Short JGB's flat slope, small term-premium suggest relative underperformance.

Note: Positions as of October 23, 2009.
Source: DB Advisors

DB Advisors – Current Allocation of Active Risk



Note: Active risk allocation as of September 30, 2009.
Source: DB Advisors

GTAA Manager Mercer Ratings/Reviews

ASRS GTAA Managers Mercer Ratings

Mercer ratings signify Mercer's opinion as to an investment strategy's prospect for outperforming a suitable benchmark, on a risk-adjusted basis, over a full market cycle.

Manager	Mercer Rating	Rating Date
Bridgewater Associates	A	4/16/09
DB Advisors	A -	3/18/09

“A” Rated Strategies are assessed as having above average prospects.

“B” Rated Strategies are assessed as having average prospects.

“C” Rated Strategies are assessed as having below average prospects.

“A-” and “B+” are intermediate categories in between “A” and “B” ratings.

“B-” is an intermediate category in between “B” and “C” ratings.

“N” Rated Strategies are not currently rated by Mercer.

“(P)” Provisional Rating – Mercer to revisit, potential rating change

Bridgewater Associates – Mercer Manager Review

Bridgewater Associates – Global TAA – Global Tactical Asset Allocation		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	++	We rate Pure Alpha highly. Despite the fact that the firm makes it more difficult now for outsiders to thoroughly analyze the investment process, we believe we have obtained sufficient information to maintain our view by combining new and older communications. Significant depth and rigor have gone into the research effort and the development of the firm's system. Bridgewater boasts a very stable and experienced team. The portfolio construction process incorporates a robust risk control framework and execution is thoroughly monitored with a sole purpose of minimizing transaction costs.
Portfolio Construction	++	
Implementation	+	
Business Management	++	
Overall Rating	A	
Rating Date	4/16/2009	<p>In general, Bridgewater's process tends to place more emphasis on bond market and currency selection decisions and less emphasis on equity market decisions and equity/bond/cash decisions than most of the firm's main competitors in this field. It is therefore best suited to mandates that provide the manager with substantial scope to take bond market and currency selection decisions.</p> <p>Pure Alpha has reopened after a period of being closed. Our opinions of the underlying strategies remain strong and we are pleased that Bridgewater has decided to control its asset growth.</p>

DB Advisors – Mercer Manager Review

Deutsche Asset Management – Global TAA – integrated Global Alpha Platform (iGAP)		
Factor	Rating (-, =, + or ++)	Comments
Idea Generation	++	<p>The iGAP strategy has at its core an impressive process and set of systems for combining isolated views from different alpha teams. Most recently DB has enhanced its systems such that value of the views on each subcomponent of a GTAA portfolio (e.g. inter-country bonds) can be assessed. Risk controls are sensible and the team will override the models to reduce risk in extreme events.</p> <p>The fact that the product does not rely heavily on any one individual has allowed it to withstand the departure of key individuals in 2004 and some additional turnover in individuals and alpha teams since then. That said there has been sufficient continuity since 2004 to make us comfortable and we feel that Janet Campagna has been successful in fitting individuals to appropriate roles in the team.</p> <p>The Global Alpha Fund is an implementation of iGAP that includes industry rotation and emerging market currencies, which are not part of the more traditional GTAA offering. Global Alpha also has monthly liquidity versus daily for iGAP. We view these distinctions as important and rate Global Alpha separately.</p>
Portfolio Construction	++	
Implementation	++	
Business Management	+	
Overall Rating	A –	
Rating Date	3/18/2009	